1.0 PHASE II ACCREDITATION SUPPORT PACKAGE DESCRIPTION

The Phase II Accreditation Support Package (ASP-II) contributes to logical verification and face validation activities by providing software design information and the results of sensitivity analyses that characterize model functionality. Assumptions and limitations inherent in the model design can be found in the Conceptual Model Specification (CMS) in Section 2.0, and the results of exercising the functional elements (FEs) over ranges of input conditions are reported in the Sensitivity Analysis results of Section 3.0. Other V&V activities that contribute to a Subject Matter Expert (SME) review in support of Phase II accreditation (input data verification and validation, comparison of model outputs with intelligence data or best estimates, and a review of model assumptions, limitations and errors) are described in the SMART VV&CM Process Description Document [A.2-1]. Results of SME review activities are usually application-specific and reported in accreditation findings or recommendations, which are not included here.

1.1 CONCEPTUAL MODEL SPECIFICATION

The purpose of logical verification is to identify and compare the model assumptions, limitations, and approximations with the phenomena being modeled to ascertain whether the conceptual model (and its resultant implementation in the code) can reasonably be expected to produce realistic results when compared with real-world phenomena. Logical verification ensures that the basic equations and algorithms comprising a model are correct within the bounds of the stated limitations, and helps to determine the appropriateness of a model for a particular application. This activity has also been called conceptual validation, even though comparisons to reality are usually intuitive rather than explicit. In the terminology adopted by SMART, verification implies examination of code, while validation requires comparisons with data.

ASP-II information contributes to logical verification efforts by providing the user with a detailed description of the model design requirements, approach, and implementation, as well as limitations, assumptions, and approximations at the FE level. This information should allow the model user to determine the range of applications for which the model can be reasonably expected to produce valid results. It remains for the user, of course, to compare this range with that required for the application at hand, and to make a determination of model suitability.

1.2 SENSITIVITY ANALYSIS RESULTS

The sensitivity analysis section document face validation activities for ESAMS. Face validation establishes the reasonableness of model out-puts, given well defined input conditions. SMEs review input data sources for acceptability, define input scenarios based on required applica-tions, and analyze model outputs to assess whether they appear realistic or representative of results that might occur in the real world under the same set of conditions.

Face validation includes a review of results from four preceding activities:

a. Input data verification, consisting of a review of model input data sources and a definition of how the data are used in the model;

b. Input data validation, consisting of a comparison of user input and embedded data to the corresponding known (or best estimate of) real world values;

c. Comparison of model outputs with intelligence data or analyses, and known (or best estimates of) real world values for corresponding phenomena; and,

d. Functional and model level sensitivity analyses.

ASP-II provides the results of detailed sensitivity analyses performed on the model and each of its functional elements. To complete face validation, the user should perform input data V&V, compare model outputs with acceptable results (e.g., from intelligence sources or other models), and review all of these with respect to model acceptability criteria that are dependent upon the intended application.